PATENT COOPERATION TREATY

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From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

KREMER, Simon, M.
Mewburn Ellis
York House
23 Kingsway
London WC2B 6HP
GRANDE BRETAGNE

RECEIVED
15 AUG 2003
MEWBURN ELLIS

WRITTEN OPINION
(PCT Rule 66)

Date of mailing *(day/month/year)*	13.08.2003
Applicant's or agent's file reference: SMK/LP6138390	**REPLY DUE** within **3 month(s)** from the above date of mailing

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/EP02/14512	18.12.2002	19.12.2001

International Patent Classification (IPC) or both national classification and IPC
C12N15/82

Applicant
DÜRING, Klaus, et al.

1. This written opinion is the **first** drawn up by this International Preliminary Examining Authority.

2. This opinion contains indications relating to the following items:

I	☒	Basis of the opinion
II	☐	Priority
III	☐	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
IV	☐	Lack of unity of invention
V	☒	Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
VI	☐	Certain documents cited
VII	☐	Certain defects in the international application
VIII	☐	Certain observations on the international application

3. The applicant is hereby **invited to reply** to this opinion.

When? See the time limit indicated above. The applicant may, before the expiration of that time limit, request this Authority to grant an extension, see Rule 66.2(d).

How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

Also: For an additional opportunity to submit amendments, see Rule 66.4.
For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4 bis.
For an informal communication with the examiner, see Rule 66.6.

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.

4. The final date by which the international preliminary examination report must be established according to Rule 69.2 is: 19.04.2004

Name and mailing address of the International preliminary examining authority:

European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 523656 epmu d
Fax: +49 89 2399 - 4465

Authorized Officer
Grosskopf, R

Formalities officer (incl. extension of time limits)
Faux, K
Telephone No. +49 89 2399-8062

WRITTEN OPINION International application No. PCT/EP02/14512

I. Basis of the opinion

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed")*:

Description, Pages

1-19 as originally filed

Claims, Numbers

1-12 as originally filed

Drawings, Figures

1-2 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

5. ☐ This opinion has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

   (Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this opinion.)

6. Additional observations, if necessary:

V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	
Inventive step (IS)	Claims	1-12
Industrial applicability (IA)	Claims	

2. Citations and explanations

see separate sheet

Ad item V:

The present claims are directed to a method for increasing the content of a transgene-encoded biomolecule in an organism, characterised by changing the distribution of ATP and/or ADP in cells of the organism. The expression "changing the distribution of ATP and/or ADP" is merely the characterisation of the essential feature by the desired result to be achieved without indicating the means how said change should be carried out. In addition, said expression neither indicates the extent of the change nor the exact localisation where said change should take place ("in cells").
In view of this vague and broad definition of the main feature and when taking into account that nearly each reaction in the cell involves a "change of distribution of ATP" (e.g. the use of glucose in a culture medium), as indicated in the search report, a meaningful search for an accordingly characterised claim over the whole range was not possible.
As a consequence, also the examination has to be limited to the those means which were used in the present application in order to achieve the change of ATP/ADP distribution, i.e. the use of the cloned plastidiary ATP/ADP transporter.

The quoted documents are:

(1) WO 99 58654 A (MAX PLANCK GESELLSCHAFT ;MOEHLMANN TORSTEN (DE); MARTINI NORBERT () 18 November 1999 (1999-11-18)

(2) GEIGENBERGER P ET AL: "OVEREXPRESSION OF PYROPHOSPHATASE LEADS TO INCREASED SUCROSE DEGRADATION AND STARCH SYNTHESIS, INCREASED ACTIVITIES OF ENZYMES FOR SUCROSE-STARCH INTERCONVERSIONS, AND INCREASED LEVELS OF NUCLEOTIDES IN GROWING POTATO TUBERS" PLANTA, SPRINGER VERLAG, DE, vol. 205, no. 3, July 1998 (1998-07), pages 428-437, XP000997825 ISSN: 0032-0935

The system which has been used in the present application to change the distribution of ATP has been described in D1.
Moreover, from several of the documents cited in the search report it is known that a change of ATP has an influence on various activities, including the increase of enzyme activities and the increase of the content of various compounds (see D2).
Thus, a skilled person would certainly not be surprised that a "change" in ATP

concentration, in general, may also have an influence e.g. on the expression of a transgene which may result in a higher or lower content of said transgene.

Therefore, the general disclosure of the claims, even when taking into account of the specific system which has been used to change the ATP distribution in a cell (see above), cannot be regarded as involving an inventive activity.